

Amendments to the Claims:

1. (Currently Amended) A skate boot apparatus comprising:

a base including an upper face configured to receive a wearer's foot and a lower face configured to structurally support a skate mechanism; and

an upper structural support integrated with the base and extending upwardly from the base to a point above a wearer's ankle, the upper support having an area of a first rigidity above and adjacent the base and at least a second rigidity lower than the first rigidity in a majority of the portion of the upper support above the area of first rigidity;

an outer shell secured outside said upper support; and

an inner liner secured inside said upper support.

2. (Currently Amended) The apparatus of Claim 1, further comprising a plurality of integrated threaded inserts configured to releasably engage a plurality of threaded fasteners to couple the base to the skate mechanism, said base being molded around said inserts.

3. (Currently Amended) The apparatus of Claim 2, wherein the base includes a resin-impregnated, fabric composite shell and a core, the core having a lower density than the shell, the shell surrounding the core, wherein the plurality of inserts are disposed toward circumferential edges of the base with a portion of the insert being supported by the shell of the base and a portion of the inserts being disposed within the core.

4. (Original) The apparatus of Claim 2, wherein the inserts are integrated with the base and configured to engage the skate mechanism through the lower face.

5. (Currently Amended) The apparatus of Claim [[4]] 1, wherein the base includes a resin-impregnated, fiber composite shell surrounding a lower density core ~~is molded around the inserts to at least partially encompass the inserts.~~

6. (Previously Presented) The apparatus of Claim 2, wherein at least one of the inserts includes an inwardly threaded female connector configured to receive one of the skate attachment devices, the skate attachment device including an outwardly threaded male connector the base having an opening corresponding to the inwardly threaded portion of the female connector, the base covering at least a portion of the remainder of the connector to retain it within the base.

7. (Previously Presented) The apparatus of Claim 2, wherein at least one of the inserts includes an outwardly threaded male connector configured to engage one of the skate attachment devices, the skate attachment device including an inwardly threaded female connector, the male connector being integrally molded in place within the base.

8. (Original) The apparatus of Claim 2, wherein at least one of the inserts includes a rigid sleeve configured to receive one of the skate attachment devices.

9. (Original) The apparatus of Claim 2, wherein at least one of the inserts includes a rivet.

10. (Currently Amended) The apparatus of Claim 1, wherein the base includes a resin-impregnated, fabric composite shell and a core, the core being of lower density material, the shell surrounding the core, the skate further comprising at least one integral lug extending generally downwardly from the base to engage the skate mechanism, the core of the base extending into the lug.

11. (Previously Presented) The apparatus of Claim 10, wherein the integral lug includes at least one attachment point extending through the integral lug in a direction generally parallel to

the lower face of the base, the attachment point being configured to receive a skate attachment device and hold the skate attachment device from translational movement relative to the base.

12. (Previously Presented) The apparatus of Claim 10, wherein the integral lug is configured to interleavably engage lateral and medial sides of a skate mechanism.

13. (Currently Amended) The apparatus of Claim 1, wherein the base includes a core section between the upper face and the lower face, the upper and lower faces being connected around the sides of the core, the faces and sides forming a resin-impregnated, fiber composite shell around the core, the core having a lower density than the shell.

14. (Previously Presented) The apparatus of Claim 13, wherein the shell is molded around the core.

15. (Previously Presented) The apparatus of Claim 13, wherein core section includes a rigid foam material encased by the shell on all sides.

16. (Previously Presented) The apparatus of Claim 13, wherein core section includes a plurality of recesses to accommodate inserts coupled with the base, the inserts having protrusions extending into an interior of the boot, the inserts abutting a least a portion of the shell.

17. (Original) The apparatus of Claim 13, wherein the core section is formed separately from the boot and received into a core section recess in the boot.

18. (Original) The apparatus of Claim 17, wherein the core section is custom formed to accommodate the wearer's foot.

19. (Original) The apparatus of Claim 17, wherein the core section is bonded to the upper surface of the base of the boot.

20. (Currently Amended) The apparatus of Claim 1, wherein the upper structural support boot is formed by joining curing together a plurality of layers of fiber composite material set and joined together with a resin.

21. (Currently Amended) The apparatus of Claim 20, wherein a varying rigidity of the upper structural support boot ranging from the first rigidity to the second rigidity is created by using a varying number of the layers, wherein sections of the upper structural support boot having a high rigidity include a first number of the layers and sections of the upper structural support boot having the low rigidity include a second number of the layers where the first number is greater than the second number.

22. (Currently Amended) The apparatus of Claim 20 [[21]], wherein the varying rigidity of the upper structural support boot is created by using layers including layers of varying compositions, each of the varying compositions having varying rigidities.

23. (Original) The apparatus of Claim 20, wherein the layers include at least one hingably coupled layer, the hingably coupled layer being partially joined with the boot toward the base and being partially unjoined with the boot away from the base such that the hingably coupled layer is movable at an upper end configured to receive the wearer's ankle.

24. (Original) The apparatus of Claim 20, wherein the layers include at least one of a long-woven fiber material.

25. (Previously Presented) The apparatus of Claim 24, wherein the long-woven fiber material includes one of a fiberglass, a carbon-fiber, and an aramid fiber.

26. (Previously Presented) The apparatus of Claim 20, further comprising an impact-resistant material layered over the outer layer of composite material.

27-28. (Canceled).

29. (Original) The apparatus of Claim 26, wherein the impact-resistant material includes a polyurethane plastic.

30. (Original) The apparatus of Claim 26, wherein the layer of impact-resistant material is an outermost layer of the boot.

31. (Original) The apparatus of Claim 30, wherein the layer of impact-resistant material is transparent.

32. (Original) The apparatus of Claim 31, further comprising a graphical design wherein the layer of impact-resistant material is disposed to at least partially protect a graphical design disposed beneath an outer surface of the layer of impact-resistant material.

33. (Currently Amended) The apparatus of Claim 32, wherein the graphical design is sublimated on a non-outward-facing side of the layer of impact-resistant material.

34. (Currently Amended) The apparatus of Claim 20, wherein the varying rigidity of the upper structural support ~~boot~~ is created by molding using a varying thickness wherein sections of the upper structural support ~~boot~~ having a high rigidity include a first thickness and sections of the upper structural support ~~boot~~ having the low rigidity include a second thickness where the first thickness is greater than the second thickness.

35. (Currently Amended) The apparatus of Claim 20, wherein the varying rigidity of the upper structural support ~~boot~~ is created by molding using a material of varying rigidity wherein sections of the upper structural support ~~boot~~ having a high rigidity include a first material and sections of the upper structural support ~~boot~~ having the low rigidity include a second material where the first material is more rigid than the second material.

36. (Original) The apparatus of Claim 35, wherein at least one of the first material and the second material includes a short fiber material.

37. (Original) The apparatus of Claim 36, wherein a rigidity of the short fiber material is increasable by increasing a fiber concentration in the short fiber material.

38. (Currently Amended) The apparatus of Claim 1, wherein the upper structural support is configured to extend generally over a metatarsal of the wearer's foot, the upper structural support having a first rigidity in a region adjacent a side of the metatarsal of the wearer's foot and a second, lower rigidity over the top of the metatarsal of the wearer's foot.

39. (Currently Amended) The apparatus of Claim 1, wherein the upper structural support is configured to receive a toe cap, the upper structural support being configured to at least partially extend over a trailing edge of the toe cap.

40. (Original) The apparatus of Claim 1, wherein the upper face of the base includes a recess for receiving an edge of a toe cap.

41. (Currently Amended) The apparatus of Claim 1, wherein at least one of the base and the upper structural support include a ventilation opening extending through the upper support.

42. (Currently Amended) A skate boot apparatus comprising:

- a base including an upper face configured to receive a wearer's foot and a lower face configured to structurally support a skate frame mechanism; and

- a boot encompassing the base within a bottom side, the boot including:

- a contoured upper support extending upwardly past the upper face of the base to surround an ankle joint, a heel, and at least a portion of a foot of the wearer, the contoured upper support having a first rigidity near the base and a second rigidity near the point above the wearer's ankle lower than

the first rigidity, the contoured upper support having a plurality of layers with more layers adjacent the base and fewer layers above the wearer's ankle; and

a shaped lower surface extending from the contoured upper support beneath the lower face of the base, the shaped lower surface being configured to engage the skate frame mechanism;

an outer layer secured outside the upper support; and

an inner liner secured inside the upper support.

43. (Currently Amended) The apparatus of Claim 42, wherein the shaped lower surface includes a plurality of integrated inserts configured to releasably engage a plurality of skate attachment devices to couple the base to the skate frame mechanism.

44. (Currently Amended) The apparatus of Claim 43, wherein the plurality of inserts are disposed toward circumferential edges of the base, the base including a fiber composite shell and a core having a lower density than the shell, the shell surrounding the core, the inserts being supported adjacent the shell and within the core.

45. (Currently Amended) The apparatus of Claim 42, wherein the shaped lower surface includes at least one integral lug extending generally downwardly from the base to engage the skate frame mechanism, the lug being formed, at least in part from the layers used to form at least a portion of the base.

46. (Previously Presented) The apparatus of Claim 45, wherein the integral lug includes at least one attachment point extending through the integral lug in a direction generally parallel to the lower face of the base, the attachment point being configured to receive a skate attachment device and hold the attachment device from significant translational movement relative to the base.

47. (Previously Presented) The apparatus of Claim 45, wherein the integral lug is configured to interleavably engage a skate mechanism on the lateral and medial sides thereof.

48. (Original) The apparatus of Claim 42, wherein the base includes a core section, the core section being one of fixably molded within the boot and injection molded into a recess formed within the boot.

49. (Original) The apparatus of Claim 42, wherein the base is configured to receive a core section, the core section being separately formed to accommodate the wearer's foot of an identified wearer and received into a core section recess in the boot.

50. (Previously Presented) The apparatus of Claim 42, wherein the layers of the contoured upper are set in a thermoplastic resin and custom formed to accommodate at least one of the wearer's foot and the wearer's ankle of an identified wearer.

51. (Canceled)

52. (Currently Amended) The apparatus of Claim 42, wherein a varying rigidity of the boot ranging from the first rigidity to the second rigidity is created by using a varying number of the layers within the upper support, wherein sections of the boot having a high rigidity include a first number of the layers and sections of the boot having the low rigidity include a second number of the layers where the first number is greater than the second number.

53. (Currently Amended) The apparatus of Claim 42, wherein a varying rigidity of the boot ranging from the first rigidity to the second rigidity is created by using layers within the upper support, including layers of varying compositions, each of the varying compositions having varying rigidities.

54. (Currently Amended) The apparatus of Claim 42, wherein the layers within the upper support include at least one hingably coupled layer, the hingably coupled layer being partially joined with toward the base and being partially unjoined with adjacent layers away from the base such that the hingably coupled layer is movable at an upper end configured to receive the wearer's ankle.

55. (Currently Amended) The apparatus of Claim 42, wherein the layers within the upper support include at least one of a long-woven fiber material.

56. (Previously Presented) The apparatus of Claim 55, wherein the long-woven fiber material includes one of a fiberglass, a carbon-fiber, and an aramid fiber.

57. (Previously Presented) The apparatus of Claim 42, further comprising an impact-resistant material affixed to the outermost composite layer.

58. (Original) The apparatus of Claim 57, wherein the impact-resistant material includes a polyurethane plastic.

59. (Original) The apparatus of Claim 57, wherein the layer of impact-resistant material is an outermost layer of the boot.

60. (Original) The apparatus of Claim 59, wherein the layer of impact-resistant material is transparent.

61. (Original) The apparatus of Claim 60, further comprising a graphical design wherein the layer of impact-resistant material is disposed to at least partially protect a graphical design disposed beneath an outer surface of the layer of impact-resistant material.

62. (Original) The apparatus of Claim 61, wherein the graphical design is sublimated on a non-outward-facing side of the layer.

63. (Currently Amended) The apparatus of Claim 42 [[51]], wherein the varying rigidity of the boot is created by molding the upper support using a varying thickness wherein sections of the boot having a high rigidity include a first thickness of the upper support and sections of the boot having the low rigidity include a second thickness of the upper support, where the first thickness is greater than the second thickness.

64. (Currently Amended) The apparatus of Claim 42 [[51]], wherein the varying rigidity of the boot is created by molding the upper support using a material of varying rigidity wherein sections of the boot having a high rigidity include a first material within the upper support and sections of the boot having the low rigidity include a second material within the upper support where the first material is more rigid than the second material.

65. (Original) The apparatus of Claim 64, wherein at least one of the first material and the second material includes a short fiber material.

66. (Original) The apparatus of Claim 65, wherein a rigidity of the short fiber material is increasable by increasing a fiber concentration in the short fiber material.

67. (Original) The apparatus of Claim 42, wherein the upper support is configured to extend generally over a metatarsal of the wearer's foot.

68. (Original) The apparatus of Claim 42, wherein the upper support is configured to receive a toe cap, the upper support being configured to at least partially extend over a trailing edge of the toe cap.

69. (Original) The apparatus of Claim 42, wherein the upper face of the base includes a recess for receiving an edge of a toe cap.

70. (Original) The apparatus of Claim 42, wherein at least one of the base and the upper support include a ventilation opening extending through the upper support.

71. (Currently Amended) An ice skate system comprising:

a skate mechanism including:

a skating device;

a skate frame supporting the skating device on a first side and configured to engage a mounting bracket on a second side; and

a mounting bracket coupled with the skate frame, the mounting bracket being configured to mount the skate mechanism;

a boot including:

a base including an upper face configured to receive a wearer's foot and a lower face configured to structurally support the skate mechanism, the base including a plurality of inserts configured to receive a plurality of skate attachment devices; and

a boot encompassing the base within a bottom side, the boot including:

a contoured upper support extending upwardly past the upper face of the base to surround an ankle joint, a heel, and at least a portion of a foot of the wearer, the contoured upper support having a first rigidity near the base and at least a second rigidity in a majority of the portion of the boot above the area of first rigidity, the second rigidity being lower than the first rigidity; and

a shaped lower surface extending continuously from the contoured upper support beneath the lower face of the base and shaped to receive an upper face of the skate mechanism;

a boot lining disposed inside the upper support boot and configured to receive the foot of the wearer; and
a plurality of skate attachment devices configured to join the skate mechanism to the boot.

72. (Original) The system of Claim 71, wherein the shaped lower surface includes a plurality of integrated inserts configured to engage a plurality of skate attachment devices to couple the base to the skate mechanism.

73. (Original) The system of Claim 72, wherein the plurality of inserts are disposed toward circumferential edges of the base.

74. (Original) The system of Claim 71, wherein the shaped lower surface includes at least one integral lug extending generally downwardly from the base to engage the skate mechanism.

75. (Original) The system of Claim 74, wherein the integral lug includes at least one attachment point extending through the integral lug in a direction generally parallel to the lower face of the base, the attachment point being configured to receive a skate attachment device.

76. (Original) The system of Claim 74, wherein the integral lug is configured to interleavably engage a skate mechanism.

77. (Original) The system of Claim 71, wherein the base includes a core section, the core section being one of fixably molded within the boot and injection molded into a recess formed within the boot.

78. (Original) The system of Claim 71, wherein the base is configured to receive a core section, the core section being separately formed to accommodate the wearer's foot of an identified wearer and received into a core section recess in the boot.

79. (Original) The system of Claim 78, wherein the core section is custom formed to accommodate the wearer's foot of an identified wearer.

80. (Original) The system of Claim 71, wherein the contoured is custom formed to accommodate at least one of the wearer's foot and the wearer's ankle of an identified wearer.

81. (Currently Amended) The system of Claim 71, wherein the upper support ~~boot~~ is formed by joining a plurality of composite material layers.

82. (Currently Amended) The system of Claim 81, wherein a varying rigidity of the boot ranging from the first rigidity to the second rigidity is created by using a varying number of the layers within the upper support, wherein sections of the boot having a high rigidity include a first number of the layers within the upper support and sections of the boot having the low rigidity include a second number of the layers within the upper support where the first number is greater than the second number.

83. (Currently Amended) The system of Claim 81, wherein the varying rigidity of the boot is created by using layers within the upper support, including layers of varying compositions, each of the varying compositions having varying rigidities.

84. (Currently Amended) The system of Claim 81, wherein the layers include at least one hingably coupled layer, the hingably coupled layer being partially joined with a remainder of the upper support ~~the boot~~ toward the base and being partially unjoined with the boot away from the base such that the hingably coupled layer is movable at an upper end configured to receive the wearer's ankle.

85. (Original) The system of Claim 76, wherein the layers include at least one of a long-woven fiber material.

86. (Previously Presented) The system of Claim 85, wherein the long-woven fiber material includes one of a fiberglass, a carbon-fiber, and an aramid fiber.

87. (Previously Presented) The system of Claim 81, further comprising an impact-resistant material layered to the outermost composite material layer.

88. (Original) The system of Claim 87, wherein the impact-resistant material includes a polyurethane plastic.

89. (Original) The system of Claim 87, wherein the layer of impact-resistant material is an outermost layer of the boot.

90. (Original) The system of Claim 89, wherein the layer of impact-resistant material is transparent.

91. (Original) The system of Claim 90, further comprising a graphical design wherein the layer of impact-resistant material is disposed to at least partially protect a graphical design disposed beneath an outer surface of the layer of impact-resistant material.

92. (Original) The system of Claim 91, wherein the graphical design is sublimated on a non-outward-facing side of the layer.

93. (Currently Amended) The system of Claim 81, wherein the varying rigidity of the boot is created by molding using a varying thickness of the upper support wherein sections of the boot having a high rigidity include a first thickness and sections of the boot having the low rigidity include a second thickness where the first thickness is greater than the second thickness.

94. (Currently Amended) The system of Claim 81, wherein the varying rigidity of the boot is created by molding of the upper support using a material of varying rigidity wherein sections of

the boot having a high rigidity include a first material and sections of the boot having the low rigidity include a second material where the first material is more rigid than the second material.

95. (Original) The system of Claim 94, wherein at least one of the first material and the second material includes a short fiber material.

96. (Original) The system of Claim 95, wherein a rigidity of the short fiber material is increasable by increasing a fiber concentration in the short fiber material.

97. (Original) The system of Claim 71, wherein the upper support is configured to extend generally over a metatarsal of the wearer's foot.

98. (Original) The system of Claim 71, wherein the upper support is configured to receive a toe cap, the upper support being configured to at least partially extend over a trailing edge of the toe cap.

99. (Original) The system of Claim 71, wherein the upper face of the base includes a recess for receiving an edge of a toe cap.

100. (Original) The system of Claim 71, wherein at least one of the base and the upper support include a ventilation opening extending through the upper support.

101. (Currently Amended) A method for forming a skate boot, the method comprising:

forming a base including:

forming the base with an upper face configured to receive a wearer's foot; and

forming a lower face configured to structurally support a skate mechanism;

and

forming a boot including:

forming an upper support ~~the boot~~ around the base with a plurality of layers of composite material extending upward integrally from the base, ~~integrating the base into the boot~~;

contouring the upper support ~~an upper portion~~ of the boot to surround a wearer's ankle, a wearer's heel, and at least a portion of a wearer's foot, the upper support ~~portion~~ having a first rigidity near the base and at least a second rigidity in a majority of the portion of the boot above the area of first rigidity, the second rigidity being lower than the first rigidity; and shaping a lower surface of the boot beneath the lower face of the base to receive the skate mechanism.

102. (Previously Presented) The method of Claim 101, further comprising shaping the lower surface to integrate a plurality of inserts in the boot, the inserts being configured to releasably engage a plurality of skate attachment devices to couple the skate mechanism to the boot.

103. (Original) The method of Claim 102, further comprising molding the base to at least partially encompass the inserts.

104. (Previously Presented) The method of Claim 101, wherein the base includes a shell and a core having a lower density than the shell, the method further comprising shaping the lower surface to include at least one integral lug extending generally downwardly from the base to engage the skate mechanism, the core extending into the lug.

105. (Previously Presented) The method of Claim 104, further comprising forming the integral lug to include at least one attachment point extending through the integral lug in a direction generally parallel to the lower face of the base, the attachment point being configured

to receive a skate attachment device, to hold the skate attachment device from translational movement relative to said base.

106. (Original) The method of Claim 104, wherein the integral lug is configured to interleavably engage a recess in a skate mechanism.

107. (Currently Amended) The method of Claim 101, wherein the upper support boot is formed by joining a plurality of composite layers.

108. (Original) The method of Claim 101, wherein a varying rigidity of the boot ranging from the first rigidity to the second rigidity is created by using a varying number of the layers, wherein sections of the boot having a high rigidity include a first number of the layers and sections of the boot having the low rigidity include a second number of the layers where the first number is greater than the second number.

109. (Original) The method of Claim 108, wherein the varying rigidity of the boot is created by using layers including layers of varying compositions, each of the varying compositions having varying rigidities.

110. (Previously Presented) The method of Claim 108, wherein the layers include at least one hingably coupled layer, the hingably coupled layer being partially joined with adjacent layers toward the base and being partially unjoined with adjacent layers away from the base such that the hingably coupled layer is movable at an upper end configured to receive the wearer's ankle.

111. (Original) The method of Claim 108, wherein the layers include at least one of a long-woven fiber material.

112. (Previously Presented) The method of Claim 111, wherein the long-woven fiber material includes one of a fiberglass, a carbon-fiber, and an aramid fiber.

113. (Previously Presented) The method of Claim 108, further comprising an impact-resistant material layered on the outermost composite layer.

114. (Original) The method of Claim 113, wherein the impact-resistant material includes a polyurethane plastic.

115. (Original) The method of Claim 113, wherein the layer of impact-resistant material is an outermost layer of the boot.

116. (Original) The method of Claim 115, wherein the layer of impact-resistant material is transparent.

117. (Original) The method of Claim 116, further comprising providing the boot with a graphical design wherein the layer of impact-resistant material is disposed to at least partially protect a graphical design disposed beneath an outer surface of the layer of impact-resistant material.

118. (Original) The method of Claim 117, further comprising sublimating the graphical design on a non-outward-facing side of the layer.

119. (Original) The method of Claim 108, wherein the varying rigidity of the boot is created by molding using a varying thickness wherein sections of the boot having a high rigidity include a first thickness and sections of the boot having the low rigidity include a second thickness where the first thickness is greater than the second thickness.

120. (Original) The method of Claim 108, wherein the varying rigidity of the boot is created by molding using a material of varying rigidity wherein sections of the boot having a high

rigidity include a first material and sections of the boot having the low rigidity include a second material where the first material is more rigid than the second material.

121. (Original) The method of Claim 120, wherein at least one of the first material and the second material includes a short fiber material.

122. (Original) The method of Claim 121, wherein a rigidity of the short fiber material is increasable by increasing a fiber concentration in the short fiber material.

123. (Original) The method of Claim 101, further comprising extending the upper support generally over a metatarsal of the wearer's foot.

124. (Original) The method of Claim 101, wherein the upper support is configured to receive a toe cap, the upper support being configured to at least partially extend over a trailing edge of the toe cap.

125. (Original) The method of Claim 101, wherein the upper face of the base includes a recess for receiving an edge of a toe cap.

126. (Original) The method of Claim 101, wherein at least one of the base and the upper support include a ventilation opening extending through the upper support.

127. (Previously Presented) The skate boot of Claim 42, wherein said shaped lower surface includes at least two generally planar engagement regions and an arch-shaped region between said engagement regions.

128. (Previously Presented) The ice skate system of Claim 71, wherein said shaped lower surface includes at least two engagement regions to receive an upper face of the skate mechanism, said shaped lower surface being arch-shaped between said engagement regions.

129. (Previously Presented) The method of Claim 101, further comprising shaping a mid region of a lower surface of the boot beneath the lower face of the base in an arch shape and a planar region adjacent the mid region.

